

## General

### Title

Occupational health: annual crude rate of ED visits for heat-related illness per 100,000 employed persons age 16 years and older.

### Source(s)

Council of State and Territorial Epidemiologists (CSTE), National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). Occupational health indicators: a guide for tracking occupational health conditions and their determinants. Atlanta (GA): Council of State and Territorial Epidemiologists (CSTE); 2016 Mar. 145 p.

## Measure Domain

### Primary Measure Domain

Related Population Health Measures: Population Use of Services

### Secondary Measure Domain

Does not apply to this measure

## Brief Abstract

### Description

This measure is used to assess the annual crude rate of emergency department (ED) visits for heat-related illness per 100,000 employed persons age 16 years and older.

### Rationale

State health agencies, which are vested with the legal authority to require disease reporting and collect health data, play a central role in public health surveillance. Whereas public health surveillance was once focused primarily on infectious diseases, it has expanded in recent years to include surveillance of a wide range of health outcomes and their determinants, including chronic diseases, injuries and health behaviors (Halperin & Horan, 1998). National statistics on occupational injuries and illnesses have been collected largely outside of the public health infrastructure and rely almost entirely on data reported by employers. State health agencies that have access to a wide variety of public health data systems have

an important role in the surveillance of occupational diseases, injuries and hazards.

Minimal epidemiological information about occupational heat-related morbidity is available. Tracking occupational heat-related illness using emergency department data will establish a baseline for occupational epidemiologists to understand the magnitude of the disease burden in the population and support implementation and evaluation of prevention measures.

## Evidence for Rationale

Council of State and Territorial Epidemiologists (CSTE), National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). Occupational health indicators: a guide for tracking occupational health conditions and their determinants. Atlanta (GA): Council of State and Territorial Epidemiologists (CSTE); 2016 Mar. 145 p.

Halperin W, Horan JM. Surveillance of injuries. Public Health Rep. 1998 Sep-Oct;113(5):424-6. [PubMed](#)

## Primary Health Components

Occupational injuries and illnesses; heat-related illness; work-related emergency department (ED) visits

## Denominator Description

Employed persons age 16 years or older for the same calendar year

## Numerator Description

Emergency department (ED) visits with a primary or contributing diagnosis of heat-related illness and with primary payer coded as workers' compensation or a work-related Ecode (see the related "Numerator Inclusions/Exclusions" field)

## Evidence Supporting the Measure

### Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

### Additional Information Supporting Need for the Measure

Exposure to environmental heat is a clear recognized hazard for many occupations where individuals are not able to maintain thermal equilibrium due to their work environment (e.g., hot and humid), required clothing type, and usage of protective equipment. In 2010, approximately 3,470 private sector workers experienced a nonfatal work-related illness (e.g., heat stroke) due to environmental heat exposure which required days away from work. Up to 17% of individuals with heat stroke have permanent neurological damage, the likelihood of which increases the longer it takes to receive treatment. Further, workers suffering from heat-related illness are at higher risk of other occupational injuries due to neurological impairment. A 2015 study of occupational heat-related illness in 9 southeastern states found significantly

elevated emergency department (ED) rates among males, younger workers and blacks. Significant variation in age-adjusted rates among the states was observed with rates ranging from 4.8 per 100,000 workers in Florida to 17.3 per 100,000 workers in Louisiana.

## Evidence for Additional Information Supporting Need for the Measure

Council of State and Territorial Epidemiologists (CSTE), National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). Occupational health indicators: a guide for tracking occupational health conditions and their determinants. Atlanta (GA): Council of State and Territorial Epidemiologists (CSTE); 2016 Mar. 145 p.

## Extent of Measure Testing

In 1998, the Council of State and Territorial Epidemiologists (CSTE), in association with the National Institute for Occupational Safety and Health (NIOSH), convened the NIOSH-States Occupational Health Surveillance Work Group to make recommendations to NIOSH concerning State-based surveillance activities for the coming decade.

The Work Group recognized the need to pilot test 19 indicators to assess the feasibility of widespread implementation and to develop specific guidance on how to compute the proposed measures. In summer 2002, the five "Core" states with NIOSH Cooperative Agreements to conduct "Core Occupational Health Surveillance" (California, Massachusetts, Michigan, New York, and Washington) agreed to pilot test the indicators and to create user-friendly "how-to" guides so that other states could calculate the indicators.

Subsequent to the initial pilot testing by the five "Core" states, eight additional states (Connecticut, Maine, Nebraska, New Jersey, New Mexico, North Carolina, Oregon and Wisconsin) pilot tested the "how-to" guides. Feedback from these additional states was incorporated into the development of the final "how-to" guides for 19 indicators in November 2004.

Procedures to review, approve, and implement new indicators were developed by the Work Group. In 2013, a fourteenth health effect indicator (*Asthma among Adults Caused or Made Worse by Work*) was developed and pilot tested. The Work Group voted to adopt this as the twenty-first indicator. In 2014, a fifteenth health effect indicator (*Work-Related Severe Traumatic Injury Hospitalizations*) was developed and pilot tested. The Work Group voted to adopt this as the twenty-second indicator.

## Evidence for Extent of Measure Testing

Council of State and Territorial Epidemiologists (CSTE), National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). Occupational health indicators: a guide for tracking occupational health conditions and their determinants. Atlanta (GA): Council of State and Territorial Epidemiologists (CSTE); 2016 Mar. 145 p.

## State of Use of the Measure

### State of Use

Current routine use

### Current Use

not defined yet

# Application of the Measure in its Current Use

## Measurement Setting

Emergency Department

Hospital Outpatient

National Public Health Programs

State/Provincial Public Health Programs

## Professionals Involved in Delivery of Health Services

not defined yet

## Least Aggregated Level of Services Delivery Addressed

State/Provincial

## Statement of Acceptable Minimum Sample Size

Does not apply to this measure

## Target Population Age

Age greater than or equal to 16 years

## Target Population Gender

Either male or female

# National Framework for Public Health Quality

## Public Health Aims for Quality

Population-centered

Risk Reducing

Transparency

Vigilant

# National Strategy for Quality Improvement in Health Care

## National Quality Strategy Priority

# Institute of Medicine (IOM) National Health Care Quality Report Categories

## IOM Care Need

Not within an IOM Care Need

## IOM Domain

Not within an IOM Domain

## Data Collection for the Measure

### Case Finding Period

The calendar year

### Denominator Sampling Frame

Geographically defined

### Denominator (Index) Event or Characteristic

Geographic Location

Patient/Individual (Consumer) Characteristic

### Denominator Time Window

not defined yet

### Denominator Inclusions/Exclusions

Inclusions

Employed persons age 16 years or older for the same calendar year

Exclusions

Unspecified

### Exclusions/Exceptions

not defined yet

### Numerator Inclusions/Exclusions

Inclusions

Emergency department (ED) visits with a primary or contributing diagnosis of heat-related illness and

with primary payer coded as workers' compensation or a work-related Ecode

Note:

Refer to the original measure documentation for administrative codes.

Refer to the "How-To Guide – Indicator #24" section of the original measure documentation for instructions to calculate the annual crude rate of ED visits per 100,000 employed persons age 16 years or older.

## Exclusions

Events with age unknown, residence out-of-state, unknown state of residence  
Case was admitted to the hospital

# Numerator Search Strategy

Encounter

## Data Source

Administrative clinical data

National public health data

Paper medical record

State/Province public health data

## Type of Health State

Proxy for Health State

## Instruments Used and/or Associated with the Measure

U.S. Bureau of Labor Statistics, Current Population Survey

# Computation of the Measure

## Measure Specifies Disaggregation

Does not apply to this measure

## Scoring

Rate/Proportion

## Interpretation of Score

Does not apply to this measure (i.e., there is no pre-defined preference for the measure score)

## Allowance for Patient or Population Factors

not defined yet

## Description of Allowance for Patient or Population Factors

Other Available Data: Age, sex, race/ethnicity, diagnosis, co-morbidities, county, residence zip code, quarter/month

Recommendations: Age, sex, race/ethnicity, zip code (or county) specific counts and rates can be used to better define the pattern of occupational heat-related illness. Heat-related emergency department (ED) visits as a proportion of all ED visits in the state can also be examined. Heat-related ED visits stratified by month or quarter can be used to identify the at-risk time period for each state.

The same methodology used in the how-to-guide (see the original measure documentation) can be used to examine heat-related hospitalizations.

## Standard of Comparison

not defined yet

## Identifying Information

### Original Title

24.2: Annual rate of ED visits for occupational heat-related illness per 100,000 employed persons age 16 years or older.

### Measure Collection Name

Occupational Health Indicators

### Measure Set Name

Occupational Injuries and Illnesses Combined

### Submitter

Council of State and Territorial Epidemiologists - Professional Association

### Developer

Centers for Disease Control and Prevention - Federal Government Agency [U.S.]

Council of State and Territorial Epidemiologists - Professional Association

### Funding Source(s)

Centers for Disease Control and Prevention (CDC)–National Institute for Occupational Safety and Health (NIOSH) Award 2-R01 OH010094-05: Enhancing State-Based Occupational Health Surveillance Capacity

### Composition of the Group that Developed the Measure

Original Work Group Members: National Institute for Occupational Safety and Health (NIOSH)–Council of

## State and Territorial Epidemiologists (CSTE) Occupational Health Surveillance Work Group

Wayne Ball, Utah Department of Health  
Geoffrey Calvert, NIOSH  
Robert Castellan, NIOSH  
Letitia Davis, Massachusetts Department of Health  
Robert Harrison, California Department of Health Services  
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Christy Curwick, Washington State Department of Labor and Industries

## Current Occupational Health Indicator (OHI) and Work Group Leads

Marija Borjan, *Co-chair* (State Representative from New Jersey)  
Tristan Victoroff, *Co-chair* (NIOSH Representative)  
Patricia Schleiff, *Co-chair* (NIOSH Representative)  
Amy Patel, *Secretary* (CSTE)  
Michelle Lackovic, *OHI Lead* (State Representative from Louisiana)

## Financial Disclosures/Other Potential Conflicts of Interest

None

## Adaptation

This measure was not adapted from another source.

## Date of Most Current Version in NQMC

2016 Mar



## Measure Maintenance

Annually

## Date of Next Anticipated Revision

Unspecified

## Measure Status

This is the current release of the measure.

## Measure Availability

Source available from the [Council of State and Territorial Epidemiologists \(CSTE\) Web site](#)

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For more information, contact CSTE at 2872 Woodcock Boulevard, Suite 250, Atlanta, GA 30341; Phone: 770-458-3811; Fax: 770-458-8516; Web site: <https://cste.site-ym.com/> .

## NQMC Status

This NQMC summary was completed by ECRI Institute on June 21, 2016. The information was verified by the measure developer on July 5, 2016.

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## Production

### Source(s)

Council of State and Territorial Epidemiologists (CSTE), National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC). Occupational health indicators: a guide for tracking occupational health conditions and their determinants. Atlanta (GA): Council of State and Territorial Epidemiologists (CSTE); 2016 Mar. 145 p.

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